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Comments— Tentative WDRs for Central Valley Meat Company, Inc. and others, Hanford Beef Processing Facility, Kings County

This letter presents my comments and recommendations on the subject tentative order issued 14 April 2023. I am a California registered civil engineer and worked in the Central Valley Regional Water Quality Control Board's Fresno office (1998-2010), mostly in the WDR Program (aka Non-15 Discharges to Land Program).

The tentative order proposes to rescind and replace Waste Discharge Requirements (WDR) Order R5-2008-0017 (current order) for Central Valley Meat Company and Lawrence and Shirley Coelho Revocable Trust, Hanford Beef Processing Facility (Facility).

The current order characterizes the Facility's operation as follows: "Process wastewater is generated five to six days per week, approximately 273 working days per year, from the slaughter of between 550 and 650 cattle per working day" (Finding 9). It identifies "Pond Effluent" as the discharge from the Facility's terminal "Storage/Percolation Pond" to the "Reuse Areas," which the tentative order calls "Land Application Areas." The Discharger-owned LAAs consist of five parcels totaling 314.37 acres, of which 286.7 are farmable (from tentative order's Attachment A).

The current order cites the reason for the issuance in 2002 of Administrative Civil Liability (ACL) complaint R5-2002-0528 as the Discharger's failure to submit complete and accurate self-monitoring reports (Finding 6). It mentions the Discharger's 2003 Report of Waste Discharge (RWD) requesting a discharge flow increase to 0.525 mgd (Finding 7). It did not authorize the Discharger's requested discharge flow increase. Instead, it prescribed a monthly average daily discharge flow limit of 0.39 mgd, reflecting discharge flows in 2008. The current order does not specify how compliance is determined with the monthly average daily discharge flow rate of 0.39 mgd. And, it also does not prescribe an effluent limitation for total annual discharge flow.

The current order's Effluent Limitation B.1 authorizes a conditional increase in discharge flow: "Upon written acceptance by the Executive Officer of the signed use agreement for the use of process wastewater on parcel 016-130-058, the monthly average flow rate shall be increased to 0.42 mgd." The tentative order indicates that the Discharger did not acquire an

agreement for this parcel. It would appear that the conditional increase to 0.42 mgd was not authorized and the effluent flow limitation remains 0.39 mgd.¹

The tentative order indicates that the Facility currently processes 1,300 to 1,600 cattle daily, and that the Discharger does not intend to increase capacity. The increase in processing capacity over the years resulted in chronic violations of the 0.39 mgd discharge flow limit. In December 2022, the Discharger brought online a new rendering facility, which is expected to add another 0.15 mgd to the Facility's discharge flow.

The tentative order states that the Discharger's 2015 RWD proposed to "increase flows, specifically requesting a maximum daily flow of 2.5 mgd, with an annual average daily flow of 1.0 mgd and a total annual flow of 129 million gallons [and] ...expand the LAA's to a total of 1,420 acres" (Finding 9). In 2021, the Discharger proposed to increase the total annual discharge flow to 365 MG (Finding 10) and further expand the LAAs to 1,574 acres (1,267 net farmable acres) (Finding 26). The tentative order establishes a limitation of 365 MG for total annual discharge flow, but not limitations for daily maximum or daily average discharge flows

The tentative order indicates the Kings County Community Development Agency approved an Initial Study/Mitigated Negative Declaration (MND) for a Facility expansion project featuring a new rendering facility (Finding 80). The MND characterizes the Facility's slaughter capacity as 2,000 cattle per day (2.17.1) and its operation as year-round, 7 days a week, 24 hours per day (2.1.7.2). Figure 3-3 FEMA Flood Map identifies the area of potential impact as encompassing the Facility Parcel and 78-acre LAA 6, APN 016-060-012, owned by Tri West Investments LLC. The MND mentions "wastewater lagoon" as associated with the proposed rendering facility (2.1.7.2), but does not evaluate the potential water quality and nuisance impacts associated with the discharge of beef processing wastewater to parcels not already authorized to receive the discharge.

Please identify the number of days per week and per year the Facility is operated, including the new rendering facility. Explain if the Facility's processing capacity and operation schedule differ from that identified in the MND.

The tentative order indicates that, since 2008, the Discharger has replaced the Facility's three unlined wastewater treatment ponds with lined surface impoundments: two concrete-lined settling ponds, each 0.1 million gallons (MG), and two doubled-lined storage ponds (14.2 MG and 11.4 MG, or 25.6 MG combined). Discharge Specification E.8 states, "The Discharger shall monitor residual solids accumulation in the effluent storage ponds annually and shall periodically remove residual solids as necessary to maintain adequate storage capacity."

¹ FYI, 45 violations entered into CIWQS from 2018 to 2022 cite 0.42 mgd as the monthly average discharge flow limit. Without information indicating the flow increase was authorized, the flow limit cited in these violations appears to be in error.

Please disclose the volumes corresponding to “adequate storage capacity” for all ponds. And, since the ponds have been in use for over ten years, describe current practices for removing and disposing of pond sludge and scum. Do these operations involve the discharge of pond sludge or scum to unlined surfaces?

The tentative order indicates that the Facility’s annual wastewater discharge flow averaged 180 MG before the rendering facility came online (IS.ii). Assuming the Facility ‘works’ 273 days per year, this annual amount averages to 0.66 mgd each working day. The new rendering facility has a design processing capacity of 10.5 million pounds per week (Finding 22), and is expected to generate 0.15 mgd wastewater flow (Finding 75). Assuming the rendering facility is also operated 273 days per year, the Facility’s expected total discharge flow should be about 0.8 mgd per working day. This is less than the 0.856 mgd value cited in Finding 75 for discharge flow *before* the rendering facility came online. If the Discharger does not intend to increase the Facility’s slaughtering and deboning capacity, the requested increase to 1.0 mgd appears to exceed current flows and the 0.15 mgd flow anticipated from the new rendering facility.

Please confirm the value used to characterize “existing flow (2021)” in Table 5, Footnote 2. In 2021, annual discharge flow was 172.1 MG (Finding 15). An “existing flow” of 0.856 mgd implies the Facility was operated only 201 days in 2021. Doesn’t the value of 0.856 mgd come from the 2021 RWD and is the proposed flow from all the Facility’s operations except the rendering facility? If the values presented in Table 5 are supposed to reflect or otherwise use 2021 flow, wouldn’t the use of 0.856 mgd yield an inaccurate projection of effluent quality?

Also, since daily influent and effluent flows may be dissimilar, please characterize daily influent flow since January 2022 in terms of monthly daily maximum and monthly daily averages, with the latter determined on a working day basis (i.e., divide the total volume of influent flow in a given month by the number of days the Facility was operated that month). Confirm that these flow rates are below the Discharger’s requested limits of 2.5 mgd daily maximum and 1.0 mgd annual average daily discharge flows..

According to Board staff, the Discharger still operates the Facility five to six days a week and about 273 days per year. The Facility’s wastewater collection sumps and many treatment operations have their own design flow capacities typically expressed as maximum daily flow and monthly average daily flows. Without flow equalization, unit operations with the lowest flow capacities – the weakest links in the chain – typically dictate a treatment system’s overall design flow capacity. In the absence of information indicating otherwise, the Discharger’s proposed 2.5-mgd daily maximum and 1.0-mgd annual average daily discharge flow limits reflect the design flow capacities of the Facility’s treatment system.

The tentative order indicates the expanded LAA acreage is more than sufficient to agronomically dispose of 365 MG annually. It does not explain why the Board should approve the Discharger’s request for a 365-MG annual flow limit when it operates its

Facility only about 273 days per year. At the requested 1.0 mgd discharge flow, the Facility's annual total discharge should be less than 280 MG.

The establishment of flow limitations in WDRs implement a fundamental best practicable treatment or control (BPTC) measure. Limitations for daily maximum and monthly daily average flows compel dischargers to ensure influent flows do not exceed the wastewater treatment systems' design capacities. Limitations for total annual discharge flow are warranted when treatment capacities exceed effluent disposal capacities.

As a BPTC measure, the tentative order should limit influent flow to the Settling Basins, monitored at INF-001, to 2.5 mgd daily maximum and 1.0 mgd monthly daily average, and to 280 MG annually. This change in compliance point allows discharges from the storage pond (EFF-001) to be conducted at flows exceeding the limits when appropriate to provide greater flexibility in effluent irrigation practices.

Please consider revising Flow Limitation C to read

- C. *Flow Limitations. Influent discharged to the settling ponds (monitored at INF-001) shall not exceed:*
1. *A maximum of 2.5 million gallons per processing day.*
 2. *A monthly average of 1.0 million gallons per processing day, calculated by dividing the monthly total influent flow by the number of processing days per reporting month.*
 3. *A total annual discharge of 280 million gallons.*

Effluent Storage Ponds or Wastewater Treatment Ponds? The tentative order describes the Facility's many wastewater collection sumps and preliminary treatment units and characterizes settling pond influent, but not effluent, which technically should be considered the "effluent" impounded in the storage ponds. Why else define them as "effluent storage ponds"?

Before the new rendering facility came online, when discharge flow was about 0.7 mgd, the storage ponds provided 37 days detention. The tentative order indicates that the settling pond/storage pond treatment removed over 85% biochemical oxygen demand (BOD) and over 50% total suspended solids (TSS). (Finding 17). At the requested 1.0 mgd annual average daily discharge flow, the storage ponds provide 25 days of detention.

Google Earth historic imagery shows the storage ponds in more-or-less constant use and, occasionally (e.g., 2/21/2021) shows what appears to be surface accumulations of sludge or scum in the southern, first-stage storage pond.

Please provide information regarding the drawdown of the storage ponds prior to the onset of the rainy season and confirm that the storage ponds provide sufficient capacity to retain

effluent when discharge to the LAAs is not is not warranted (no crop demand) or not allowed (during precipitation events and when soils are saturated).

The storage ponds encompass about six acres. Unlike the current order, the tentative order requires the Discharger to maintain in the ponds a minimum dissolved oxygen concentration of 1.0 mg/L. Because they are not equipped with supplemental aeration, BOD loadings to the ponds in excess of 100 lbs/acre/day have the potential for depleting dissolved oxygen and causing odor nuisance. At the requested 1.0 mgd discharge flow rate, this loading limit would require the BOD of settling pond effluent to be reduced to 75 mg/L.

If the information is available, please characterize the BOD loading to the storage ponds (lbs/day/acre) prior to and after the initiation of the rendering facility discharge. And, disclose whether the discharger case file has complaints of odors from the Facility's treatment system and/or the effluent discharges to LAAs.

The tentative order projects the discharge to the LAAs will have a BOD of 341 mg/L, which is comparable to raw municipal sewage. Because of the discharge's high BOD, the tentative order relies on soil treatment to decompose BOD to levels that are assumed to not pose a risk to groundwater. Its BOD loading limit of 100 lbs/acre/day does not apply to the day of application, but rather to the application cycle (i.e., a day of discharge followed by several days of drying out during which soil re-aerates).

Please consider revising the BOD loading limit to include an instantaneous BOD loading limit of 300 lbs/acre/day (i.e., applicable on the day of application). Without this limit, effluent discharges to the LAAs may create odor nuisance conditions and adversely impact residents of properties adjacent to the LAAs, who likely never received notice from Kings County of the Discharger's proposed construction and operation of the rendering facility.

Like most WDRs that impose a BOD loading limit, the tentative order specifies how to calculate BOD loadings in its monitoring and reporting program (MRP). In my experience, even when the MRP provides instructions, it is the exception rather than the rule for dischargers to correctly calculate BOD loading, especially to flood irrigated LAAs. Three key variables that must be monitored and reported daily are: (1) the amount of effluent discharged to an LAA; (2) the surface area of the individual furrows within the LAA receiving the discharge; and, (3) the number of days that have elapsed since the same individual furrows last received an effluent discharge. These variables may be simple in concept, but in reality, require each individual furrow within each LAA to be identified in order to keep track of when they last received an effluent application. Too often than not, dischargers simply report the acreage of the entire LAA as receiving the effluent discharge, even when only a small portion of the LAA was actually wetted on the day of the discharge.

Such tedious record keeping is a challenge for the most sophisticated and compliant dischargers. The Discharger has a poor record of compliance with Board adopted WDRs. Early on, its discharge of brackish hide processing wastewater to unlined ponds

unreasonably degraded groundwater. Then, over the decades, it repeatedly increased Facility processing capacity, thereby causing discharge flows to routinely exceed flow limitations. And, in 2002, it was issued an ACL complaint for failing to submit complete and accurate self-monitoring reports. Besides flow limit violations, CIWQS documents many recent violations for failing to submit timely self-monitoring reports (specifically, groundwater monitoring reports).

The Discharger has expanded its LAA acreage through purchase or contract agreement with Tri West Investments, LLC, two living trusts, and three individuals. Without a concerted effort on the part of the Discharger to teach these LAA property owners how to properly monitor effluent discharges to their property, it is doubtful that the Discharger's self-monitoring reports will accurately report BOD loadings. And, given the limited resources provided to the Board's monitoring and surveillance efforts, it is doubtful that staff will review the Discharger's SMRs on a timely basis to assess whether loadings are calculated accurately.

Please consider including a provision in the tentative order requiring the Discharger to submit by 400 days following order adoption a technical report prepared and certified by a California-registered civil engineer that summarizes an evaluation of the Discharger's self-monitoring reports submitted since order adoption. The report shall certify that all calculated values are determined in accordance with MRP instructions. If the evaluation determines that these values were incorrectly calculated, the report shall include corrected values and a description of corrective measures that the Discharger will implement to ensure future self-monitoring reports are accurate and complete.

The Facility's rendering capacity elevates its significance in the San Joaquin Valley's agribusiness economy. It now provides an essential function, especially during periods of high cattle mortality. In many respects, it now functions like a municipal sewage treatment facility in terms of having to consistently provide an essential service in an environmentally safe manner. Because of this, the tentative order should not rely on soil treatment for BOD removal. Nor should it rely on potentially dozens of field personnel retained by LAA owners to ensure essential data is collected to calculate BOD loadings.

Instead, as a BPTC measure, the tentative order should establish BOD limitations reflecting secondary treatment for the discharge to the effluent storage ponds. This would reduce BOD loadings to LAA soils levels comparable to the recycling of secondary treated municipal wastewater on crops. It would also eliminate the tedious record keeping required for accurately calculating cycle average BOD loadings.

It is not unprecedented for Board-adopted WDRs regulating food processing wastewater discharges to land to contain effluent limitations for conventional pollutants comparable to secondary treatment. Indeed, the Tulare Lake Basin Plan states, "Generally, the effluent limits established for municipal waste discharges will apply to industrial wastes" (4-24).

In 2008, the Board adopted WDR Order R5-2008-0008 for Hilmar Cheese Company, Inc. and Reuse Area Owners, Hilmar Cheese Processing Plant. This order prescribes a monthly average BOD effluent limitation of 50 mg/L for discharges to an effluent storage pond or to Reuse Areas. In 2009, the Board adopted WDR Order R5-2009-0086 for Foster Poultry Farms, Livingston Chicken Processing Complex Wastewater Treatment Plant. This order prescribes effluent limitations of 40 mg/L monthly average and 80 mg/L daily maximum for BOD and for TSS, and also includes an effluent limitation of 10 mg/L for monthly average total nitrogen.

Please consider revising the tentative order to prescribe limitations for BOD of 40 mg/L monthly daily average and 80 mg/l daily maximum for the discharge from the settling ponds to the storage ponds, monitored at a new location, INF-002, to the storage ponds..

Alternatively, please consider prescribing a BOD loading limit of 600 lbs/day to the storage ponds, monitored at INF-002, to ensure consistent compliance with the minimum dissolved oxygen limit of 1.0 mg/L. At an influent flow rate of 1.0 mg/L, this would require BOD levels to be reduced to 75 mg/L at INF-001.

Given that the Discharger cannot immediately comply with these limits, please consider establishing a reasonable compliance schedule (i.e., not to exceed five years).

Minimum Setbacks and Air Gaps. Neither the current nor tentative order includes a discharge specification requiring minimum setbacks to property lines, surface waters, and domestic and irrigation supply wells. These setbacks minimize the risk of inadvertent or accidental effluent discharges offsite or to sources of water supply. Minimum setbacks to domestic wells in particular reduced the risk of pathogens present in the discharge from entering groundwater used for domestic supply. Order R5-2017-0058 WDR General Order for Confined Bovine Feeding Operations (Bovine General Order) requires a setback of 100 feet between supply wells and animal enclosures in the production area.

While the tentative order does not characterize the discharge for pathogens, the Facility's discharge likely contains several types, including Salmonella, Listeria, and *Escherichia coli*. Additionally, some pathogen strains are antibiotic-resistant due to the use antibiotics in raising cattle. The establishment of setbacks to domestic wells is a BPTC measure that minimizes the risk posed by pathogens in the discharge to residents of properties near the LAAs who rely on private wells for domestic supply.

Please consider including the following discharge specification adapted from State Board's General Winery Order:

The Discharger shall adhere to the following setbacks (minimum horizontal distances) unless a different setback is approved by the Executive Officer based on site-specific conditions or except as otherwise required (e.g., California Plumbing Code, county or local agency requirements, California Well Standards, part II, section 8).

- i. Waste shall not be discharged within 50 feet of any water supply well.*
- ii. Waste shall not be discharged within 50 feet of surface waters or surface water drainage courses.*
- iii. Waste shall not be discharged within 25 feet of the property line, except for land application areas where a 5-foot setback from the property line shall apply, provided the irrigation system is managed to prevent discharges offsite.*

The current order's Reuse Area Specification D.2 states: "No physical connection shall exist between wastewater piping and any domestic water supply or domestic well, or between wastewater piping and any irrigation well that does not have an air gap or reduced pressure principle device." The tentative order does not carry over this specification.

Please revise the tentative order to include the above specification as a new Land Application Area Specification.

Cattle Corrals and Associated Waste Discharges. Neither the current nor tentative order addresses discharges of waste to land associated with the operation of the Facility's existing cattle corrals (1.4 acres) and corral runoff collection and disposal pond (0.35 acre). Finding 2 of the Bovine General Order states, "'Confined Bovine Feeding Operations' means commercial operations where cattle (cows, bulls, steers, heifers, or calves) representing 6 or more Animal Units (AU)¹ are confined and fed **or maintained** for a total of 45 days or more in any 12-month period, and where vegetation is not sustained over a majority of the confinement area during the normal growing season (emphasis added)." It would appear that the Facility's cattle corrals and associated pond (and waste stockpile area²) are subject to coverage under this general order. CIWQS has no record of the Discharger being issued a Notice of Applicability (NOA) for coverage under Order R5-2017-0058.

Please confirm that the Discharger is not currently regulated by Order R5-2017-0058 and explain, if warranted, why staff has determined this general order is not applicable to the Facility's cattle corrals and associated pond and waste stockpiles. If staff has determined that the Facility's corrals are subject to regulation under this general order, then the tentative order should be revised to either (1) include applicable requirements in the general order to the Facility's cattle corral operation or, preferably, (2) include a provision requiring the Discharger to submit a complete Notice of Intent for coverage under the general order within a reasonable amount of time (e.g., 90 days).

Historic imagery available on Google Earth from 2012 to 2015 show various stages of work involved to decommission the former ponds. The image dated 3/30/2015 shows eight cattle corrals constructed in a 1.3-acre area within the footprint of the former ponds. The

² Google Earth historic images dating back to 5/24/2009 show an area immediately east of the former ponds containing stockpiled material (corral scrapings?). By 6/15/2011 the stockpile area encompassed two acres. The tentative order does not identify this discharge.

tentative order does not disclose that the Discharger has repurposed the former pond area to almost double the acreage encompassed by the Facility's cattle corrals.

The tentative order indicates the pond decommissioning work required the removal of 1,450 cubic yards of pond bottom soil and backfilling with clean borrow material (Finding 8). Given the area encompassed by the former ponds (about 15,000 square yards), this quantity suggests that only the upper three inches of pond bottom soil was removed. The tentative order does not cite evidence indicating the quality of deeper (and remaining) soil is comparable to background soils or otherwise poses little or no risk to groundwater. Without information indicating otherwise, the operation of cattle corrals in the former pond area risks further degrading deeper soil and contributing to an existing condition of groundwater degradation resulting from the former pond discharge.

Please explain why the tentative order should not prohibit the use of the former pond area for cattle corrals or other Facility operations that generate waste discharges to land.

Miscellaneous Comments. Finding 29 indicates effluent is discharged to boarder checks and/or furrows. Finding 30 indicates the Discharger's 2021 RWD described how compliance with the BOD loading limit of 100 lbs/acre/day "can be achieved by applying 1.0 to 5.0 inches of wastewater every 1 to 40 days to each LAA field."

Please explain how effluent applications of 1 inch depth can be achieved via flood irrigation? Isn't the typical water depth per flood irrigation event at least five inches, maybe more?

Finding 14 references a process flow schematic (Attachment D), which does not show the Solids Collection Area having any wastewater flows (leachate or stormwater runoff).

Please disclose how the Solids Collection Area is designed and operated to collect and properly dispose of leachate and stormwater runoff.

The summary of effluent quality data from 2020 through 2022 presented in Finding 16 indicates that average annual effluent BOD concentrations were less than 200 mg/L (i.e., from 136 to 186 mg/L). The summary also indicates that about 75% to 85% of effluent nitrogen is ammonia-N, and the remainder is organic nitrogen (i.e., effluent contains negligible concentrations of nitrate-N).

The data also indicate effluent contains higher EC and bicarbonate alkalinity compared to influent. Finding 18 attributes these increases as "likely due to evapoconcentration within the lined effluent storage ponds." Evaporative loss in impounded water is better estimated by a conservative constituent like chloride. The data show effluent chloride is only 7% greater than influent. The 89% increase in bicarbonate alkalinity (and its contribution to the 108% increase in EC) is more likely the result of the biological oxidation and reduction of organic carbon to carbon dioxide and its dissolution in wastewater (i.e., BOD decomposition through "internal reactions within the storage ponds"). Lastly, the data

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indicate that the concentration of total nitrogen in effluent is 23% greater than in influent. This suggests that algae growth may be contributing to the discharge's overall nitrogen content.

In closing, I hope that staff considers my recommendations for revising the tentative order to strengthen its requirements to protect water quality and preclude odor nuisance.

Thank you for your time and consideration.



JO ANNE KIPPS